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**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MONTANA  
BILLINGS DIVISION**

UNITED STATES FIDELITY AND  
GUARANTY COMPANY,

and

# THE CONTINENTAL INSURANCE COMPANY,

## Plaintiffs.

V.

## SOCO WEST, INC.

Defendant.

Plaintiffs United States Fidelity and Guaranty Company (“USF&G”) and The Continental Insurance Company (collectively, the “Insurers”) hereby respond to defendant Soco West, Inc.’s (“Soco”) Motion to Exclude Certain Opinion Testimony of Bruce E. Dale (“Motion”).

### **INTRODUCTION**

Dr. Bruce E. Dale is a professor of chemical engineering at Michigan State University – the branch of engineering most closely connected with the production, use and properties of, among others, synthetic solvents, including chlorinated volatile organic compounds. Perchloroethylene (“perc”) – the key chemical at issue in this case – is one such solvent. Dr. Dale’s expert report, as supplemented (attached as Exhibit A), describes his expertise and identifies the numerous lawsuits in which he has testified regarding perc, including a number of cases involving contamination from dry cleaning operations that principally utilize perc in their operations. (*Id.*, at 9-10; *see also* Oct. 5, 2009 Deposition of Bruce Dale (“Dale Dep. Tr.”) 38-40 (excerpts attached as Exhibit B).) Dr. Dale’s general qualifications and expertise are not challenged.

Dr. Dale has been designated by the Insurers, among other things, to describe the chemical properties of perc and provide context for the jury’s consideration regarding whether a catastrophic spill of some 250-1,000 gallons of perc, as alleged by Soco, can be inferred from the purely circumstantial evidence

on which Soco's claims are based. His opinions will greatly assist the jury in this case to understand those basic properties, including how perc reacts chemically with other substances – specifically asphalt, and its color, constituency and smell. Dr. Dale's opinions also will aid the jury in understanding the size range of a 250-1,000 gallon surface release of perc.

Although he testified at the January 2007 trial, Dr. Dale has submitted a new expert report (dated June 1, 2009) that is consistent with his prior expert disclosures. Soco's Motion challenges three sub-parts of Dr. Dale's June 1, 2009 report – Opinions 2.a., 2.g. and 2.h. Those three opinion sub-parts all involve matters about which Dr. Dale previously testified at the January 2007 trial. Dr. Dale's trial testimony was allowed after Soco unsuccessfully moved *in limine* to exclude his opinions based on arguments fundamentally indistinguishable from those now asserted in the Motion. (See Order dated April 21, 2006 (CM/ECF Doc. No. 263) (Dr. Dale's opinions “are sufficiently reliable to pass the ‘gatekeeping’ function of *Daubert*.”)<sup>1</sup> Soco is now asking this Court to reverse itself as to the three opinion sub-parts that are the subject of its Motion.

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<sup>1</sup> For example, in its previous motion *in limine*, Soco criticized Dr. Dale's work, among other things, as lacking “any scientific analysis or calculation” and not based on any scientific analysis or “methodology.” He also was criticized for his supposed limited experience concerning how “perc will react with asphalt” and how his analysis “differed so dramatically from the conditions that would have existed during a spill of perc during a loading or unloading procedure at the Dyce site in the 1970's.” (See Defendants' Motion *in Limine* #3 Regarding Designated Experts Morrison, Dale and Alvey, filed by Soco on March 23, 2006 (CM/ECF

Just as they failed before, Soco's criticisms of the three opinion sub-parts now at issue come nowhere close to supporting its *Daubert*/Rule 702 challenge to Dr. Dale. Soco has cited to *Daubert*, as if its simple invocation somehow supports the Motion. Soco's brief is entirely devoid of any explanation how Dr. Dale's opinions about the chemical properties of perc, virtually unchanged in pertinent respects from what he described at the January 2007 trial, represent any sort of novel or untested theories or principles unsupported by sound science. They of course do not.

All of Dr. Dale's opinions in question are plainly relevant in the context of this case. At best, Soco's criticisms go to weight, not admissibility, and are matters for cross-examination in the event Soco determines to pursue them at trial. As this Court previously ruled, “[c]ross examination is the proper method of attacking” Dr. Dale's opinions. (*Id.*)

### **THE CHALLENGED OPINIONS**

#### **A. Dr. Dale's Opinion 2.a.: Surface Diameters of Released Perc**

Opinion 2.a. sets forth the results of Dr. Dale's calculations regarding the size of a 250-1000 gallon spill on a level, non-reactive surface. Soco challenges Dr. Dale's calculations for failing to take into account, among other things, various “real world” conditions that might have existed on the unknown date of the alleged

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Doc. No. 226.) All of those arguments, of course, were rejected by this Court in its April 21, 2006 Order.

spill. (Motion, at 10.) The premise for Soco's assertion is wrong and Soco's Motion misconstrues the import of how Dr. Dale's opinion will assist the jury in this case.

The scientific basis, and the supporting literature for the methodology used, for those calculations were identified by Dr. Dale. (*See* Dale Dep. Tr. 59-60; Dale Dep. Tr. exhibits 3643, 3644 (Ex. B).) The results of those calculations will provide the jury with a frame of reference in which to consider whether the catastrophic 250-1,000 gallon perc spill that Soco contends somehow went unnoticed and unreported on some unspecified date in 1975, 1976 or 1977 actually happened.

Dr. Dale calculated the diameter of a 250-1,000 gallon release of perc "into an intact, level surface." (Ex. A, at 2.) He does *not* opine that a round circle of perc that size necessarily would have occurred on the surface of the Dyce facility had such a spill actually happened. (Dale Dep. Tr. 79 (Ex. B).) His report and deposition testimony (Dale Dep. Tr. 69-71 (Ex. B)) both acknowledge how various other conditions might affect his calculations. No expert, however, could quantify such variables where the evidentiary record is totally devoid of information regarding (i) the specific day, month or even year in which Soco claims the alleged spill took place; (ii) the precise location for Soco's alleged spill such as would allow for any evaluation of how buildings or site features would have obstructed lateral spreading; or (iii) the specific details regarding the facts and circumstances

of the alleged spill, *i.e.*, how it supposedly occurred (other than speculatively during the off-loading of perc from a delivery tanker truck).<sup>2</sup> Even Soco's own asphalt expert, Kenneth Grzybowski, admitted as much. (See Sept. 29, 2009 deposition of Kenneth Grzybowski ("Grzybowski Dep. Tr.") 101 (excerpts attached as Exhibit D) (Absent evidence of the "specific conditions at the time of the alleged spill," an expert "can't replicate that mathematically in a formula," but rather "can approximate only."))

The lack of information regarding these and other variables, however, is the direct consequence of the purely circumstantial case that Soco intends to put forth in an attempt to support a series of several inferences from which they will ask the jury to conclude that, once upon a time in the mid-1970's, a really big perc spill occurred in the loading and unloading area at the Dyce facility. It is at least ironic, if not disingenuous, for Soco now to argue that Dr. Dale's expert opinion should be excluded because he failed to take into account various unknown factors about the unobserved and unrecorded spill that Soco will ask the jury to *infer*. Precisely that

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<sup>2</sup> Dr. Dale's Opinion 2.a. refers to a "level" surface and his prior testimony assumed an essentially flat surface in the loading and unloading area where the supposed perc release took place. (See January 2007 Trial Transcript ("2007 Trial Tr.") 1440, excerpts attached as Exhibit C) (the loading and unloading area was "basically flat with a little bit of slope"). That reference is well supported by aerial photographic evidence, as well as the elevation studies that have since been done in this case. See Supplemental Report of Dr. Bruce Dale (attached as part of Exhibit A). And while Soco insists that "all of the evidence" concerning the loading and unloading area "indicates that the surface was sloped to shed rainwater" (Motion, at 8) – whatever that may mean is an issue for Soco to explore on cross-examination. It is not a basis for excluding Dr. Dale's Opinion 2.a.

point was made by the Insurers in opposing Soco's prior motion *in limine* regarding Dr. Dale. (See Joint Response of USF&G and Continental to Defendants' Motion *in Limine* No. 3, filed April 3, 2006, at 10-11 (CM/ECF Doc. No. 236)), and this Court denied Soco's motion in its entirety. (CM/ECF Doc. No. 263.)

In simple point of fact, Dr. Dale's Opinion 2.a. provides an entirely proper frame of reference for a jury to understand and consider the enormity of what Soco insists actually took place, which is to say a very physically large release of perc. As Dr. Dale explained at his deposition, even accounting for all of the unknown variables that might affect the surface size of such a release, the size of even a 250 gallon release would be "substantial"; measured in the "tens of feet no matter what other circumstances." (Dale Dep. Tr. 75-76 (Ex. B).) "The diameter of the spill would be a matter of tens of feet, not tens of inches." (Dale Dep. Tr. 62 (Ex. B).) While Soco's Motion mocks that testimony (Motion, at 8-9), it plainly is sufficient under Rule 702 in the context of this case and will assist the jury in understanding that, no matter what variables or weather conditions may have existed at the time of the alleged spill, 250-1,000 gallons would cover a very large surface area that would be difficult not to notice. While Soco's desire to avoid expert testimony that calls into question just how such a large spill event could occur without people noticing is understandable, particularly in light of the extreme string of inference upon inference on which Soco's case is based, Dr. Dale's opinion is proper under

*Daubert* and F.R.E. 702. Dr. Dale's opinion quantifies the surface diameter that would result from the release of 250 gallons of perc in static conditions at 48 feet (which is a maximum), and ranging from there to not less than 20 (*i.e.*, "tens of") feet, which is a minimum, irrespective of what conditions existed.

It is perfectly proper to present expert testimony about calculations and scientific principles in order to inform the jury's consideration and evaluation of the specific facts and circumstances of the case in light of those principles. The fact that Dr. Dale did not attempt to actually replicate a spill event at the former Dyce facility based on factors that are not even alleged, much less known, provides no legal basis for excluding his expert opinion altogether. *See, e.g., Vasquez v. City of Phoenix*, 2006 WL 2841411, at \*3 (D. Ariz. Sept. 29, 2006) (denying *Daubert* challenge in case involving a fall and alleged resultant brain injuries where expert "did not attempt to replicate" plaintiff's fall to the ground, but instead sought to "measur[e] the forces that would result from" such a drop).

Dr. Dale's challenged Opinion 2.a. was fully allowed at the January 2007 trial:

Q. I think when we broke, Professor Dale, I'd asked you what your recollection was of the minimum size of the spill that Soco is contending, in its operational area, caused the perc contamination.

A. 250 gallons.

Q. Is it possible to calculate what kind of spill that would have created?

A. Yes, it is.

Q. How?

A. Well, we have standard methods in physical and chemical engineering, based on the properties of the fluid, how far a liquid will spread out.

Q. How do you do that?

A. Well, it depends on what's called the surface tension. That's how tightly the molecules hold together; once again, the density, the viscosity of the fluid. Just pretty much the standard equations to use to do that.

\* \* \*

A. I just applied it to a spill of perc of 250 gallons. I took the properties of perc and, you know, figured out how far a spill would spread out.

Q. And first of all, you might as well, before I put up the exhibit, tell us the answer.

A. Well, a spill of 250 gallons of perc on a level surface, I assumed concrete, level surface, would spread out about 48 feet in diameter. That's roughly -- actually this courtroom is roughly 40 feet side to side, so it's a little bit further than, you know, the whole width of the courtroom.

\* \* \*

Q. Let's move on to the 1,000-gallon scenario that Soco contends could have happened.

How big a diameter would that spill have been?

A. I think it's 98 feet. I don't remember the exact number.

(2007 Trial Tr. 1385-1386, 1407 (Ex. C.).)

Even Soco's own asphalt expert, Kenneth Grzybowski, newly designated as a rebuttal expert to Dr. Dale for the upcoming trial, grudgingly acknowledged the accuracy of Dr. Dale's calculation:

Q. Well, let's go through the report then. I'm looking at Page 2 of his report, Paragraph 2, at the bottom.

"The physical properties of perc pertinent to my opinions include the following." Do you see that reference?

A. Yes.

Q. Subparagraph "a"?

A. Yes.

Q. Given the density and viscosity of perc, a release of 250 gallons of perc onto an intact level surface, with which perc did not interact, would spread to circle about 48 feet in diameter.

Do you see that statement in his opinions?

A. Yes.

Q. Do you agree or disagree with that statement?

A. It's consistent with his calculations.

Q. Do you agree or disagree with his statement?

A. *Agree. As it is, I agree with it.*

(Grzybowski Dep. Tr. 85-86 (emphasis added) (Ex. D).)

The same calculation used with respect to a 250 gallon release of perc with which Mr. Grzybowski agreed, also was used by Dr. Dale with respect to a 1,000

gallon perc release, and could be used for any size release simply by adjusting the amount of the assumed perc release. (Dale Dep. Tr. 68-69 (Ex. B).)<sup>3</sup>

Finally, in addition to its inaccuracy, Soco's criticism of Dr. Dale for supposedly failing to account for so-called "real world" conditions, and his approximation of "tens of feet," is both ironic and disingenuous given the highly speculative report and associated experiments of Soco's own asphalt expert Mr. Grzybowski. (See Grzybowski expert report and supplemental report dated July 31 and October 15, 2009, attached as Exhibit E.) There, Mr. Grzybowski explains his work, where he took four-inch diameter asphalt pavement samples, washed them, and then exposed those samples to a few ounces of different chemicals, including perc, at room temperature in an enclosed space for varying amounts of time and without taking into account any of the "real world" variables for which Dr. Dale's work is criticized. (See Grzybowski expert report (Ex. E) and Grzybowski Dep. Tr. 230, 233-34 (Ex. D).) That work is not described as based on any specific

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<sup>3</sup> Thus, not surprisingly, Mr. Grzybowski was unable to take issue with the 1,000 gallon calculation either:

Q. You do know whether he's right or wrong?

A. Do not know.

Q. Do you intend to do any calculations?

A. No.

(Grzybowski Dep. Tr. 88 (Ex. D).)

testing protocol found in scientific literature that would be pertinent to the odd set of inferences which will determine the outcome of this case, much less “peer reviewed” – criticisms that Soco levels at various of the challenged opinions.<sup>4</sup> (Motion, at 13.) Mr. Grzybowski photographed that process (attached to his reports) and apparently will describe it and display the photographs at trial. Nothing about Mr. Grzybowski’s work, however, attempted to mirror hypothetical weather conditions at the Dyce facility on some purely speculative date in 1975-1977, or the impact of any clean-up efforts (e.g., hosing with water), that might have been undertaken immediately after the alleged spill occurred; nothing Mr. Grzybowski did attempted to replicate the velocity of perc being discharged under pressure onto asphalt through a two inch hose at 60 gallons per minute (which Dr. Dale calculated as 20.1 mph (*see* Dr. Dale Supplement dated October 7, 2009 (Ex. A)), or the impact of the blasting effect that would be created (Dale Dep. Tr. 50-52 (Ex. B)); and no part of Mr. Grzybowski’s work attempted to account in any way

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<sup>4</sup> These particular criticisms are asserted by Soco in connection with a demonstration video that accompanied Dr. Dale’s report. That demonstration video, however, was not intended to show, and does not show, the *tarring* effects that are the subject of Dr. Dale’s Opinion 2.g. Accordingly, Soco’s Motion – while gratuitously critical of the video – does *not* actually seek to exclude its presentation to the jury. Nor could it. The demonstration on that video, which was explained in detail by Dr. Dale at his deposition, is “appropriate to this litigation” and “supported by rational explanations which reasonable men might accept.” *Seeley v. Hamilton Beach/Proctor-Silex, Inc.*, 349 F. Supp. 2d 381, 386, 387 (N.D.N.Y. 2004) (testing specific to the factual situation involved in case proper even though not “subject to peer review” or known and accepted “within the scientific community.” Any “weaknesses … may be exposed through cross-examination.”)

for the sheer force and weight of 250-1,000 gallons of perc – which Dr. Dale calculates as ranging from 1.7 to 6.8 tons (Ex. A) – a point not contested by Soco.

Moreover, Mr. Grzybowski’s report is replete with approximations and characterizations that are far more vague, generalized and imprecise than Dr. Dale’s more exacting references, such as the one to “tens of feet.” For example, Mr. Grzybowski’s report concludes that a large perc spill of the size alleged by Soco “would not have resulted in *extensive or readily noticeable damage*.”

According to Mr. Grzybowski, even large amounts of spilled perc on asphalt “would have *evaporated quickly*,” resulted only in “*minor dissolution* of the asphalt,” and left only a “*thin layer*” of perc that would “*evaporate in a short time*.” Furthermore, any darkening of the asphalt that might have resulted “would *likely be short lived*” and that asphalt stains, if any, only would be present “*to a small degree*” because the released perc “would *readily flow off* the asphalt.”

Discoloration of the ground only “*would be slight and most likely non-detectable*,” as gravel and rocks “would *tend to obscure* possible *minor* discoloration.”

Impacted asphalt, according to Mr. Grzybowski, only would be affected “*to a small degree*” and, in his expert opinion, Mr. Grzybowski “highly doubt[s] anyone would observe a *marked difference*.” (Ex. E, section captioned “Review, Assessment & Summary” (emphases added).)

If nothing else, Soco, itself, has set the *Daubert* and Rule 702 bar with its own asphalt expert, and Dr. Dale well exceeds that bar. Dr. Dale's opinions are wholly supportable and proper under *Daubert* and F.R.E. 702.

**B. Opinion 2.g.: Perc Deteriorates Asphalt and Makes it Tarry**

The proposition underlying Opinion 2.g. is not remarkable. Perc reacts with, softens, and deteriorates asphalt. In a word, it turns asphalt "tarry." Opinion 2.g. is fully supported by the evidence, Dr. Dale is qualified to testify to the science that explains that chemical reaction, and he was allowed to testify precisely to that effect at the January 2007 trial.

Several former Soco employees who worked as laborers at the Dyce facility testified at the January 2007 trial to precisely how perc softens and deteriorates asphalt. It readily reacts with, and destroys, asphalt upon contact. For example, according to Marvin Johnson, who worked in the 1980's, perc "would eat [asphalt] up." "[I]f you spill the perc onto the asphalt, it just worked against the asphalt. (2007 Trial Tr. 1276 (Ex. C).) And as Johnson stated further at his deposition, "if perc were spilled on asphalt, '[i]t would eat it up,' 'dissolv[e] the asphalt,' and 'mak[e] it soft.'" (Deposition of M. Johnson dated August 29, 2001, taken in *Weiss, et al. v. Brenntag West, Inc.*, at 62, 248-49, 284-85 (excerpts attached as Exhibit F).) Former employee Ken Kjos testified that spilled perc would "deteriorate" asphalt (2007 Trial Tr. 1489 (Ex. C)), and Richard Colver testified that perc spilled on asphalt would "eat it up" and "destroy it." (2007 Trial Tr. 743,

748-49 (Ex. C.) And finally, former Soco corporate environmental manager, Jeffrey Simko, testified at his deposition that perc is “harmful to asphalt,” and that “it would loosen it up pretty good and make it mushy.” “[A]sphalt exposed to quantities of perc would need to be replaced because the perc would ruin it for its intended purpose.” (Simko Dep. Tr. 165-67 (excerpts attached as Exhibit G).)<sup>5</sup>

After describing generally the chemical reaction that occurs when perc comes in contact with asphalt, Dr. Dale provided expert testimony to the same effect at the 2007 trial, explaining that contact between perc and asphalt will make the asphalt “so gooey and messy that you’d get a boot full of tar. It would really be a mess.” (2007 Trial Tr. 1403 (Ex. C.).)

It’s a mess. It’s a huge mess. Every low spot has got perc in it, and in these low spots the asphalt is dissolved, making it a tar, a gooey mess.

(2007 Trial Tr. 1409-10 (Ex. C.).)

Dr. Robert Harris, Soco’s expert at the January 2007 Trial, and whose prior expert reports have been expressly endorsed by his partner, Dr. Robert Powell, who will provide expert testimony in his stead at the upcoming trial, himself acknowledged that perc deteriorates asphalt, as this Court noted in denying Soco’s

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<sup>5</sup> Simko’s testimony is the subject of the Insurers’ pending Motion to Reconsider Prior Ruling Regarding Testimony of Jeffrey Simko. (CM/ECF Doc. Nos. 419, 420.)

earlier motion *in limine*.<sup>6</sup> (See Order dated April 21, 2006, at 3 (CM/ECF Doc. No. 263).) And once again, Soco's new asphalt expert, Kenneth Grzybowski, conceded the obvious possibility that cracks and indentations in the asphalt paved loading and unloading area of the Dyce facility could provide places for spilled perc to pool and collect in the event of a large scale release. Such features necessarily would enhance the amount of time the perc and asphalt would remain in contact, and thus the tarring or softening effects that can result:

Q. Would there be cracks in the asphalt that would develop over time? Is that anticipated?

A. Yes.

Q. All right. Would you agree that there would be indentations caused, say, by the semi trucks coming in?

A. Maybe.

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<sup>6</sup> In section 1.1 of his June 1, 2009 expert report (attached at Exhibit H), Dr. Powell states:

One of my ENVIRON colleagues, Dr. Robert Harris, previously submitted an expert report, a rebuttal report, and a supplemental report on these same issues in this and related actions. I have read Dr. Harris' reports and reviewed and/or am familiar with the materials he relied on in forming the opinions expressed in those reports. Based on my own review and familiarity with those materials and my knowledge, experience, and qualifications, I have no disagreement with the opinions set forth in Dr. Harris' reports.

The referenced Harris reports include the comments relied upon by this Court in denying Soco's prior motion *in limine*.

\* \* \*

Q. All right. And would you agree that if there were cracks and indentations, they would serve as areas where perc would collect and not flow off?

A. Could be.

(K. Grzybowski Dep. Tr. 142-144 (Ex. D).)

The disparaging remarks and characterizations that Soco makes about Dr. Dale's supposed limited personal experience and observations regarding perc/asphalt reactions notwithstanding, the fact remains that Dr. Dale has observed the same tarring effects which form part of the basis for his Opinion 2.g.<sup>7</sup> Moreover, and in any event, Dr. Dale's "overall education and experience is more than adequate to permit him to testify as an expert" regarding the challenged opinion. *Seeley*, 349 F. Supp. 2d at 387 (Electrical engineer with experience determining causes of fire may testify regarding alleged toaster malfunction and fire even though expert had no specific experience with toaster manufacture and design); *see also Arneson v. Mich. Tissue Bank*, 2007 WL 4698986, at \*8 (D. Mont. Mar. 26, 2007) (expert witness not precluded because of supposed lack of

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<sup>7</sup> Soco's Motion also suggests that because Dr. Dale's personal observations, although fully described at his deposition, were not specifically referenced in his report, that somehow calls those observations into question. (See Motion, at 6-7.) Those gratuitous statements should be ignored. Dr. Dale's report is fully compliant with Rule 26 and, as this Court previously has stated, in all events, "if they disclose it in a report or if a deposition is taken and they disclose it at the time of the deposition, that's good enough." (2007 Trial Tr. 1395 (Ex. C).)

“first hand experience.” The “purported lack of additional qualifications goes to the weight of his testimony, which may be thoroughly examined at trial.”<sup>8</sup>

### C. Dr. Dale’s Opinion 2.h.: Perc’s Strong and Distinctive Odor

In this Opinion, Dr. Dale opines that “[p]erc has a distinctive, penetrating smell.” Here again, however, Soco criticizes Dr. Dale for not taking into account myriad, but unknown, weather conditions that might impact how far and wide that odor could or might have traveled. But for exactly the same reasons discussed above with respect to Dr. Dale’s Opinion 2.a., the sheer vagaries of Soco’s own allegations prevent any expert from doing so. Dr. Dale’s Opinion 2.h. is intended to provide the jury with context in which to evaluate Soco’s purely inferential claims that a 250-1,000 gallon release took place at the Dyce facility, and that personnel there not only failed to see the spill, but apparently failed to smell it either. It clearly is proper for Dr. Dale to describe this particular property of perc, which will assist the jury in evaluating an actual spill that Soco will urge the jury to infer really happened.

Dr. Dale’s Opinion 2.h. is a frame of reference starting point fully supported by scientific, mathematical calculation:

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<sup>8</sup> It is particularly ironic that Soco’s asphalt expert, Mr. Grzybowski, who purports in his report to rebut Dr. Dale’s Opinion 2.g. (*see Ex. E*), has *never* “been called upon to investigate a spill of any quantity of perchloroethylene on asphalt,” and has *never* even “seen the after effects of what you know to be a spill of PCE, perchloroethylene, on asphalt.” (Grzybowski Dep. Tr. 62 (Ex. D).)

Q. [Is] 2H in your report that the smell caused by release of 250 to 1,000 gallons of perc would be noticeable over a large area based on any mathematical calculation?

A. Yes, it is.

Q. Okay. And what is that calculation?

A. The calculation is the concentration of 50 parts per million at which people can smell perc, and the total for a 500-gallon spill, for a 500-gallon spill if all of that spill were converted to vapor, okay, in other words, all that 500 gallons became vapor, it would fill a hemisphere, a bowl, 250 parts per million and the bowl would be 1,000 feet in diameter, over 1,000 feet in diameter.

\* \* \*

A. What my calculation is saying is, if you took 500 gallons of perc and converted it all to vapor, and then you diluted that vapor to 50 parts per million, what's the total volume it would occupy, assuming that volume is spherical, but you restrict it from the ground, it's going to fill a hemisphere, a globe, okay, imagine the perc in the center evaporating and expanding to fill the globe. It will fill a globe of 1,000 feet in diameter, a very large distance.

Q. What's the formula you use for that calculation?

A. The volume of the sphere, actually volume of a hemisphere,  $4/3 \pi r^3$ .

(Dale Dep. Tr. 117-119 (Ex. B.))

Dr. Dale is not opining that this calculation necessarily delineates the farthest reaches to which recognizable perc odor would have emanated from Soco's alleged spill. To the contrary, he acknowledges that other variables could

be worked into his analysis. Soco, of course, is free to do so at trial during cross-examination. None of that, however, detracts from the central point of Opinion 2.h. Whatever the farthest reaches of perc odor emanating from 250-1,000 gallons release, the impacted area is large. As Dr. Dale explains, “certainly over the area of the Dyce site where people work, I just can’t imagine that people working there wouldn’t smell 250 to 1,000 gallons of perc spilled.” (Dale Dep. Tr. 121 (Ex. B).)

Dr. Dale provided just such testimony at the January 2007 trial. (*See, e.g.*, 2007 Trial Tr. 1410-13, 1440 (Ex. C).) His Opinion 2.h. also is consistent with the testimony of numerous former Soco’s employees who remarked about the strong, distinctive odor of perc. (*See, e.g.*, testimony of Marvin Johnson (“Perc is an extremely strong-smelling product, and if you, you spill it on the ground, especially if you’ve got dirt … the perc smell is like diesel fuel (2007 Trial. Tr. 1306)); Richard Colver (perc has a “fairly strong” odor (2007 Trial Tr. 745)); and Monte Naff (“Perc has “a pretty noticeable smell” (2007 Trial Tr. 914).) And it is more than borne out by the scientific literature relied upon by Dr. Dale. *See* Perchloroethylene Data Sheet (2007 Trial Ex. 3407-0005 (attached as Ex. I) (“The odor threshold under ideal conditions has been reported as low as 5 ppm, but under practical conditions is probably 30 to 50 ppm.”)).

Put simply, any challenge that Soco seeks to make to Dr. Dale’s Opinion 2.h. in an effort to explain just how it was that no one – including anyone at the

Dyce facility itself – ever smelled the alleged spill, is a subject for cross-examination, not the wholesale exclusion of Dr. Dale's Opinion 2.h.

Dated: November 13, 2009

Respectfully submitted,

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**CERTIFICATE OF COMPLIANCE**

The undersigned certifies that this brief complies with the requirements of Local Rule 7.1(d)(2). The total word count in the brief is 5,021 words, excluding the caption and Certificates of Service and Compliance. The undersigned relies on the word count of the word processing system used to prepare this brief.

/s/ Marshal L. Mickelson  
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and Guaranty Company*

**CERTIFICATE OF SERVICE**

The undersigned, an attorney for Plaintiff United States Fidelity and Guaranty Company, certifies that on November 13, 2009, the foregoing document was electronically filed with the Clerk of the Court using the CM/ECF system which will send notification of such filing to the following counsel of record.

/s/ Marshal L. Mickelson

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